296 of petticoats are made by one woman, although
531 this technique is primarily found in Nahuatzen. The proportion of women doing this work seems significantly smaller in the third *cuartel* or *barrio* when compared with the other *cuartels*.

The crochet may be replaced by embroidery or drawn work, especially on finer materials such as linen or rayon. Designs either come "from one's head" or patterns may be bought in market. Usually the poorest designs come from the market, but no evidence was found either to indicate preservation of traditional patterns on the part of those not using commercial patterns, or to indicate creativeness in designs. Blouses decorated with crochet involve 1 week's part-time work, and embroidered or drawn-work blouses, from 1 to 3 weeks.

286 *Blanket weaving.*—About four men in Cherán weave blankets. These men buy raw wool, and wash, clean, card, and spin the wool, and do the weaving. White, brown, and black colors are usually natural wool colors. For blue, the [386] only other common color, the weaver dyes white wool with indigo. A urine mordant is used. To produce a gray thread, white, black, and blue wool are mixed together before carding. Raw wool is washed and cleaned, losing about one-third its weight in the process.

283 Carding is done with commercial steel cards [435] which cost $8.00 a set and last about 3 years. A handful of wool is placed on one card and the other is drawn across it several times. The wool is then folded on one of the cards and the process repeated. If wool of two or more colors is being mixed, the rectangles of carded wool are torn into pieces, mixed together, and carded a second time in order to give a more uniform color.

Spinning is done with a wheel (fig. 6). The edges of a rectangle of carded wool are folded along the long side. The rectangle is then pulled apart down the middle except at one end, giving a strip of carded wool about 1½ inches wide. One end is thrown over the left arm and the other end fed into the yarn with the left hand while the wheel is turned with the right. When 6 to 8 inches are lightly twisted, the yarn is stretched to from 24 to 30 inches, given a tighter twist, and then wound on the spindle (fig. 6). [Text continued on page 36 b]

283
[405]

[402]

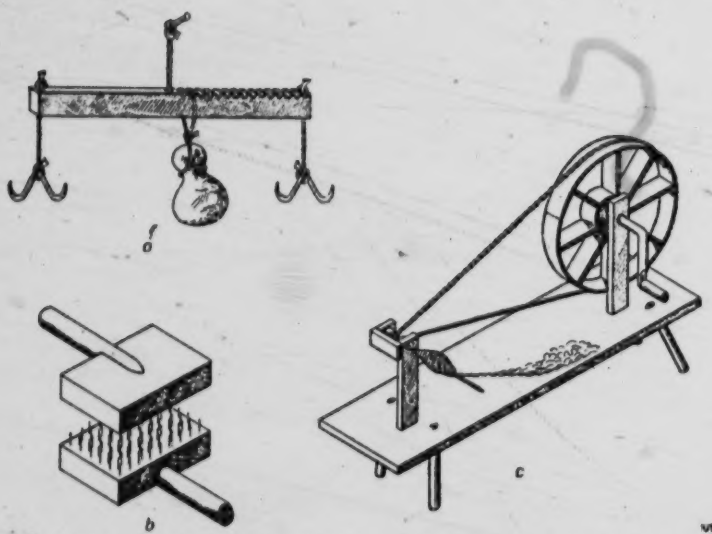

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FIGURE 6.—Spinning wheel and associated implements. *a*, Scales for weighing wool; the weight is a 1-pound stone; length of the beam is 14½ inches. *b*, Carders used to prepare wool for spinning, about 9 by 12 inches; the wires are merely indicated schematically and actually are much more numerous. *c*, Home-made spinning wheel; the wheel is turned with the right hand, the wool fed into the thread with the left hand; the spinner stands to operate the apparatus.

[p. 36a]

1: Beals E-5 (1940-1941) 1946

NU34 Tarasco NU34
Sierra Tarascans

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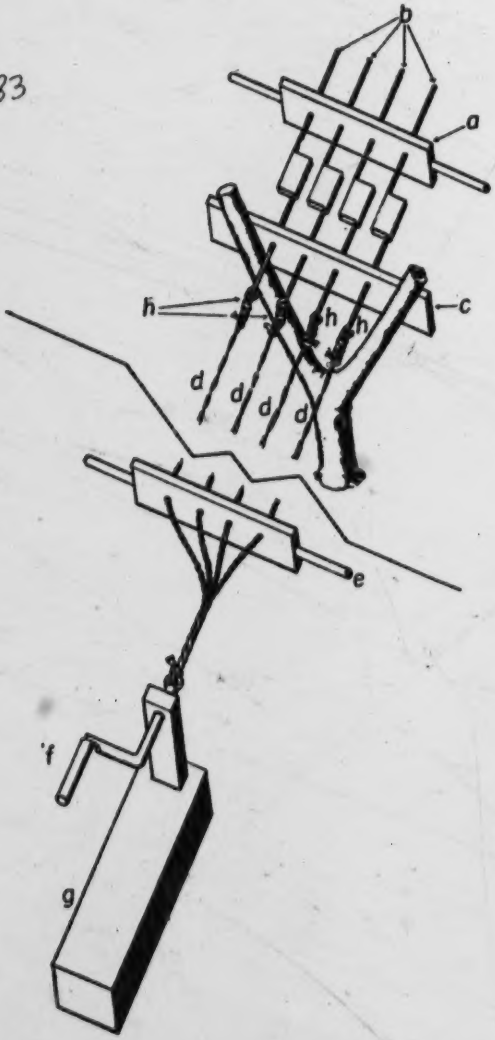

FIGURE 10.—Four-ply rope-twisting device used in making horsehair lead ropes. Three men are needed to operate the device. Four groups of horsehair threads (spun on a simple spinning device, not illustrated) are fastened at *h* and at *f*, passing through the holes in the piece of wood *e*. *e* is a second perforated piece of wood fastened to a Y-shaped stump. Crank *f* is first blocked so it will not revolve. The first operator rotates the piece of wood at *e*, causing cranks *b* to revolve and twist the four hanks of thread (*d*), into cords. Crank *f* is now released. The first operator holds the board (*e*) stationary, a second operator rotates the crank (*f*), and a third operator moves the board (*e*) toward *c* as the rope is formed by twisting the four cords (*d*) together. *g* is a heavy billet of wood, about 5 by 1 by 1 foot. As the cords and rope are twisted, the increasing tension drags *g* forward about 6 or 8 feet. *h* are short maguey fiber strings attaching the cords (*d*) to the cranks (*b*). These strings are not part of the finished rope.

[p. 45]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

295 *Shoemaking.*—One master shoemaker with two apprentices makes shoes of locally produced leather. The apprentices get no pay, working from 6 months to a year in order to learn the trade. The master shoemaker learned in the same way. The techniques present no unusual points of interest.

Equipment includes a sewing machine, lasts, knives, and awls. The master shoemaker not only must know his trade, but also he must be able to judge hides and tanning and be a good buyer. Only a portion of the Cherán demand is supplied locally, and many consider the local shoes inferior to those from outside.

At least three men make *guaraches* to order on a part-time basis. *Guarache* making does not require a sewing machine, and the capital required is small. Most *guaraches* are imported. The type is described in connection with clothing.

283 *Rope and twine.*—One man makes kite strings during the kite season in March. No interview could be secured with this man. Another man specializes in horsehair lead ropes and maguey fiber *riatas*. A fairly complex twisting device is used (fig. 10).

303 *Hair brushes.*—One family of four makes its entire living by manufacturing brushes of *raiz de paja*. The family collects its own raw materials and dries the roots. Brushes are made by fastening bunches of root in metal rings of about 1-inch diameter, then trimming the ends off square.

532 *Masks.*—One family makes wooden masks to order, charging about 2 pesos a piece. The workmanship is very poor and most masks are [439] bought in other towns, especially Sevina and Cheranástico. The local masks are cheaper and much easier to buy, but most people would go to considerable trouble to get the out-of-town product.

SPECIALIZED SERVICE OCCUPATIONS

463 A number of occupations are characterized by the selling of services requiring specialized knowledge rather than the sale of goods transformed from raw material. Certain types of trading occupations, such as storekeeping, could logically be included here, but their consideration is deferred to the section on economics. Other skilled specialists dealing in purely

294 433 434 [435] Some persons make and sell finished garments. Men's trousers or blouses require about 2½ meters of material, at an average cost of about 30 centavos a meter. One woman specializes in children's garments. She claims to make 3 to 4 dozen children's garments a week, selling them at 80 centavos to $2.50 apiece (including materials). Her profits vary. A child's rayon dress requiring $1.50 worth of material she sold for $1.75, while for a cotton dress requiring $0.40 worth of material she charged $0.80.

[439] All fitted or tailored garments, which are growing in popularity, are imported. A widely heard comment was that anyone in Cherán who could make and fit garments, especially men's shirts, would make great profits.

MINOR ACTIVITIES

433 434 [394] *Candlemaking:*

Cost of wax (per kilo)	
Sales of candles from 1 kilo of wax	$2.25–$2.50
Possible profit (excluding labor and equipment)	$0.50–$1.00

[283] *Rope making (horsehair):*

Horsehair $0.50 per kilo	$0.37½
Labor	1 day
Sale price	$1.50
Gross profit per day	$1.12½

Comment: Only one man was found who made ropes. No data were secured on agave fiber ropes made by the same man, nor on the time taken in marketing and securing raw materials. As all the equipment is home-made and very little capital is needed, the gross profit probably is close to net profit except for the factors mentioned.

295 433 434 *Shoemaking:*

Equipment:

Sewing machine	$55.00
Lasts	?
Knives	?

Labor:

1 cheap pair of shoes per day is produced by a shoemaker and 2 unpaid apprentices

[435] Value of product (per pair) $3.00–7.00

Estimated gross income:

Per day	1.50
Per pair of shoes	1.50–3.50

Comment: No clear picture of the economics of this industry was secured. The selection and purchase of hides involves knowledge of tanning, size, and quality of the hide. Guarache makers apparently earn as little as 20 centavos a day, but there are no full-time professionals in town. All local manufacturers make guaraches to order and in claiming they make only one pair a day, they probably mean they do not attempt to make more than one pair a day.

281 435 434 *Tanning:*

Charge per cowhide	$5.00–$10.00
Charge per sheepskin	.50
Average daily return	1.25

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 64-a]

438
323 ajara, Morelia, the *tierra caliente* of Guerrero, and
[439] Mexico City.

Another type of ceramic industry is represented by the clay toy figurines made by the women of Ocumicho in their spare time. The hollow figures are formed with molds in shapes of diminutive horses, sheep, oxen, and men, each with an opening which serves as a whistle. After firing, they are painted and varnished. Owing to complete lack of water near the town in the dry season, this activity is carried on only during the rains. Ocumicho figurines are seen in markets in many parts of western Mexico and the *tierra caliente* of Guerrero and Michoacán.

Red clay tiles, which are slowly replacing shakes in the Tarascan area, are made in some pueblos within the clay belt on the margins of the Sierra. Tanaco is the sole town within the Sierra proper to make this product. In Nahuatzen the
[177] technique of making flat concrete tiles was introduced in 1944. Such tiles are replacing the less durable clay ones in some mestizo towns.

TEXTILES

286 In 35 modern Tarascan villages spinning and weaving of cotton, wool, or agave fiber are carried on as cottage industries. Both indigenous
[177] and European techniques are employed, neither having changed since the 16th century. Since the beginning of the present century, however, factory-made textiles from large Mexican towns have begun to displace some home-woven articles, but indigenous conservatism still supports the native handicraft.

283 **Spinning.**—Formerly Tarascan weavers spun raw cotton from the *tierra caliente*, but at present commercial cotton thread, purchased in mestizo markets, is prepared for weaving by twisting five to six strands on the spinning wheel. Today only raw wool and agave fiber are homespun, the latter with the native *malacate* (uipínu), or hand spindle with round clay wheel, the former with the 16th century spinning wheel (*torno*). (See Beals, 1946, p. 36, for illustration of spinning wheel.)
[186] Both cotton thread and spun wool are usually colored locally with aniline dyes purchased in mestizo markets.

286 **Weaving.**—Tarascans weave all agave and cotton fabrics on the native belt loom (patákua (Paracho); jopáratakua (Charapan, Tarecuato)), a horizontal loom which has a backstrap and is

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 64-b]

286 found in most parts of indigenous America south of the United States (pl. 11). Customarily, only women operate this loom; however, in Tarecuato agave fiber is woven with it by both men and women, and in Tanaco, exclusively by men. Until the 1880's the most important fabric made with the belt loom was the cotton *manta*, a simple white cloth used for native clothing since pre-Conquest days. The cheap factory-made cottons [177] of Puebla and Veracruz have completely displaced the indigenous *manta*, so that today Tarascans weave women's and men's belts (*fajas*), shawls (*rebozos*), aprons (*delanteras*), tablecloths and napkins (*servilletas*). Widths of cloth ranging from 1½ inches (women's belts) to more than a yard (*rebozos*) can be woven on these looms. Designs are usually woven into the above-named articles, the warp threads being first arranged for large widths on a long stick (šekuárakua) and for the narrow *fajas* on the šekuáni, an arrangement of four to five small sticks placed in the ground. Some of the finest examples of cotton weaving are found in the Sierra pueblos: Paracho (whose women make the Tarascan "*rebozo corriente*"), Ahuíran (women's belts), Angahuan (women's belts, aprons, *rebozos*), Charapan (belts, aprons, tablecloths), San Lorenzo (tablecloths, belts).

In the early colonial period the weaving of agave fiber was apparently widespread in the Sierra (AGN Congregaciones, f. 14), but today it is limited to Tarecuato and Tanaco.[139] In these villages the main agave fiber products are *morrales* (square bag with shoulder straps), *ayates* (coarse piece for wrapping articles to be carried on back), and *costales* (coarsely woven sacks for carrying goods on mules and burros). The fiber of *maguey bruto* 283 (akámba t'arímiti) is used for the finely woven morrales, while that of *maguey del toro* (torakámba) is employed for the coarser *ayates* and *costales*. Leaves of the agave plant are cut and the fiber extracted and carded. After drying, it is spun by (1) rolling fibers on the thigh with the hand, or [286] (2) with the malacate. The fibers are woven on the belt loom in the same fashion as cotton[140] (pl. 11). A piece of the agave fabric is doubled over and sewn on the sides to make the morral, and a shoulder cord is added. Other agave fiber [439] products made in Tarecuato include rope and

[139] Agave fiber products were manufactured in Pichátaro during the last century (AAM, siglo XIX, leg. 707).

[140] The loom for weaving agave fiber is called uápstakua in Tarecuato.

293
439 cord; these and the woven articles are marketed in Guanajuato, Jalisco, the *tierra caliente*, and in all parts of the present Tarascan area.

286 Woolen products are woven mainly on the European loom, which was introduced early in
[177] the 16th century.[141] During most of the colonial period this loom was used principally in the *obrajes*, or cloth mills established by Spaniards in various parts of Mexico near an abundant supply of wool. Indians first learned European weaving techniques in these mills, the labor for which came from surrounding native pueblos. By 1540 an *obraje*, operated by 26 forced native workers, had been set up in Acámbaro (Paso y Troncoso, 1905, vol. 1, p. 33), and before the close of the century woolen mills existed in Taximaroa and Valladolid (Zavala and Castello, 1939–46, vol. 6, p. 225). Moreover, Indians quickly learned to spin wool, for tributes of spun wool were exacted from some pueblos, possibly to supply *obrajes* nearby.[142] It is not clear when the Tarascans began to use the hand loom in their own villages; possibly some looms were set up in the northern towns in the 16th century.[143] A report of 1789 (AGN Historia, vol. 73) on the Tarascan pueblos of Lake Pátzcuaro and the Sierra, however, mentions the use only of the native loom. The first indication of a native wool industry in the Tarascan area comes from the Martínez de Lejarza report of 1822, which cites the *obrajeros* of San Juan Parangaricutiro (later the most renowned of the Tarascan blanket-weaving towns) and of several northern mestizo towns.[144] Tarascan wool weaving on a commercial scale may be post-colonial, having little economic basis until the break-down of the large woolen mills at the close of the colonial period. Today woolen blankets
[438] (*cobijas*, *serapes*) are made on the European hand loom in 24 Tarascan towns, Nahuatzen and pre-volcano Parangaricutiro being the largest pro-
ducers.

[141] Strands of wool are sometimes mixed with cotton in making women's belts. Often the warp is of woolen strands, the woof of cotton thread.

[142] For example, ca. 1540 the people of Puruándiro (Michoacán) contributed each week two arrobas of spun wool (Paso y Troncoso, 1905, vol. 1, p. 117).

[143] The Relación de Chilchota (Mss. Nac.) states that some natives in the town made clothes of wool, but the type of loom used is not given. Moreover, according to the Relación de Cuitzeo (Mss. Nac.), the Indians living around the lake "... *tenían lana a los cuamerenses para hacer ropa para vestirse, y sus mugeres la hacíanla* ..." Again, the type of loom used to weave wool is not given.

[144] The northern towns mentioned: Morelia, Zinapécuaro, Zitácuaro, Taximaroa, Jiquilpan, Huaracháta, La Piedad, Huaniqueo, and Tangamandapio. At that time the latter pueblo was wholly Tarascan; according to Martínez de Lejarza (1824, p. 227), "... *sus habitantes trabajan telares de algodón y lana.*"

285 438 the Lake area a twilled technique is used in mat making, which is performed on the ground, the only tools being a knife or sharp stone to cut tule stalks and a wooden mallet to flatten the reeds as they are twilled. Several sizes of mats are made; the largest, called simply k'uírakua-k'éri, measures 1.5 by 1 m.[149] Both mats and fire fans are taken to the Lake markets (Pátzcuaro, Erongarícuaro, Quiroga), where they are purchased by the Sierra people and buyers from the *tierra caliente*.

Basketry.—Ihuatzio and San Jerónimo in the Lake area are the only modern Tarascan towns in which baskets are made. The former Tarascan towns of Tangamandapio (west of Zamora) and Panindícuaro (north of Zacapu) are the main basket centers in the general area, supplying the Sierra people with the šúndiča, or harvest baskets for maize. The Ihuatzio baskets are made of split carrizo stalks, which grow in abundance in local house lots. Both wicker and twilling techniques are used (pl. 12).

286 438 **Netting.**—In all fishing villages around Lake Pátzcuaro nets are made by men, women, and children in their spare time. On Janitzio and the Urandén Islands a few professional *rederos* fabricate nets to sell to fishers in other pueblos. Cotton [283] thread purchased in Pátzcuaro is wound on the *hilador* (šoróranskua) and five to six strands are twisted with the native malacate or with the European spinning wheel. The twisted strands are water-soaked and sun-dried. Nets are made with the čurúkua, a large wooden needle (20 cm. long, 2 cm. wide).

294 [171] **Capote making.**—In many parts of indigenous Mexico the palm-leaf raincape (*capote*), similar to those worn in the Orient, is a common outdoor apparel during the wet season. *Capotes* are made [438] by women in three Tarascan towns—Quinceo, Arantepacua, and Turicuaro—using leaves of the *palma pimu* (*Acoelorraphe pimo*), which are im- [439] ported from the *tierra caliente* below Ario de Rosales.[150] The capes are fabricated by tying soaked strips of palm leaf onto braided cords, two of which are stretched parallel and one foot apart on pegs driven into the ground. The strips of

[TEXT CONTINUES TOP OF P 667a]

[149] Other types: The k'amérita (1.5 m.×80 cm.) and the tímánitepémuecha (1 m.×80 cm.), both used for sleeping; the jatápetakua, a small knee mat; lóstitan, a long, narrow mat sold to mestizos as a sort of rug. Many more sizes and varieties occur, the names and types varying from place to place. The terms and types given above were observed in Ihuatzio and some of the ranchos along the shore of the Tarúru-k'éri Peninsula.

[150] Most of the palm leaves used in Arantepacua are said to come from the localities of Rosario, La Playa, Charapendo, and San Marcos, south of Ario.